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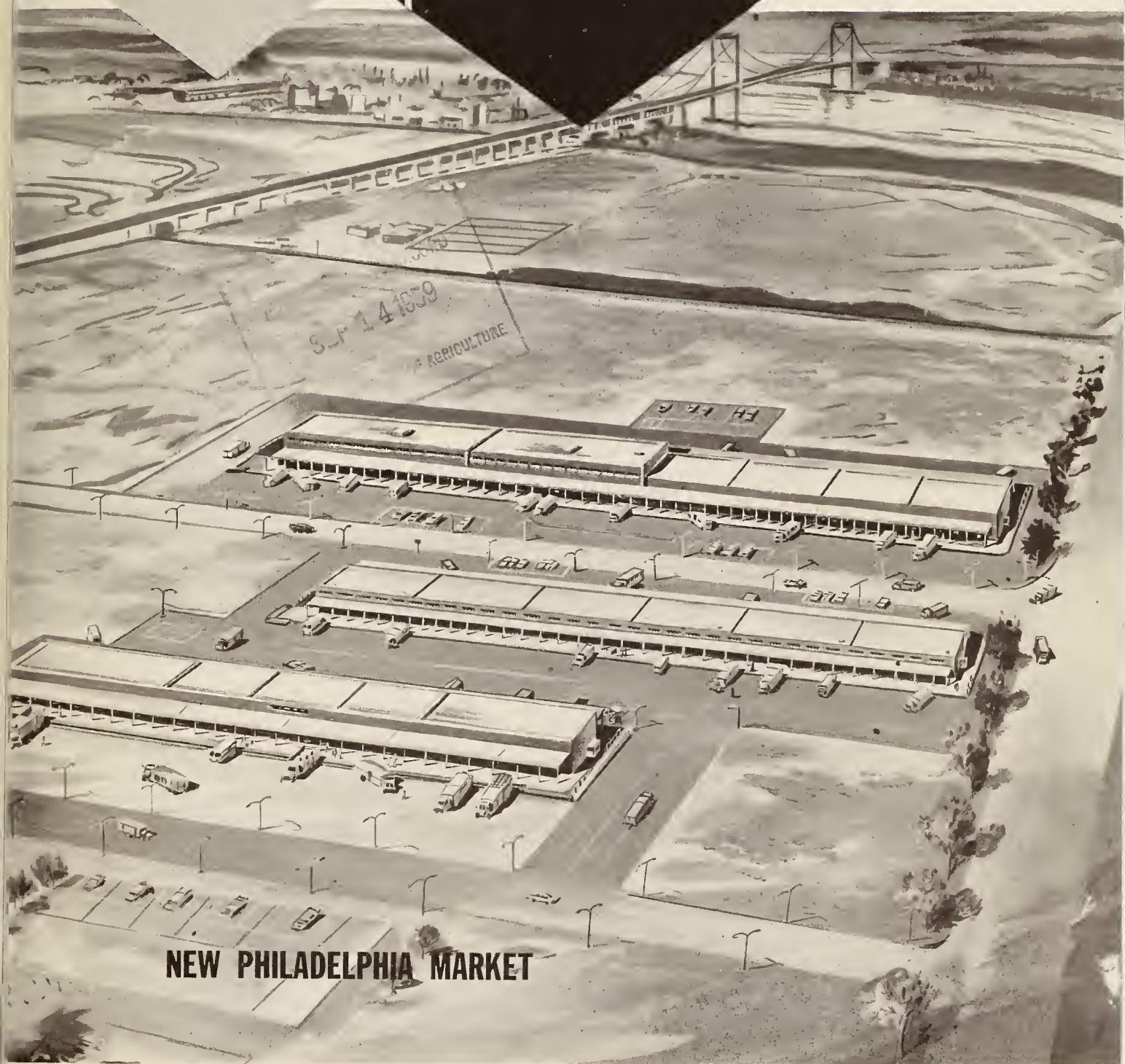


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# agricultural marketing

SEPTEMBER 1959



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**Editor, Milton Hoffman****Assistant editor, Jeanne Starr Park**

AGRICULTURAL MARKETING is published monthly by the Agricultural Marketing Service, United States Department of Agriculture, Washington 25, D. C. The printing of this publication has been approved by the Bureau of the Budget, March 18, 1959. Yearly subscription rate is \$1.50, domestic; \$2.25, foreign. Single copies are 15 cents each. Subscription orders should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.





## ECONOMIC EFFECTS OF WASH and WEAR COTTON

by Frank D. Barlow, Jr.

THE introduction of wash-and-wear cottons has produced a chain reaction in the fiber-fabric-clothing industry, repercussions in the world of retailing and laundering, and a fallout of mixed blessings for producers and consumers alike.

Happily, every man, woman, and child who wears clothing stands to gain from wash-and-wear garb—either in less labor for its upkeep, in neater looking garments, or in lower home laundering costs.

These were some of the conclusions of the AMS economist who analyzed the effects of this recent development in the textile industry.

The market potential for wash-and-wear cottons has been multiplying ever since the spring of 1955 when several major textile firms started producing resin-treated cottons in volume, first for clothing and more recently for household items.

The importance of wash-and-wear apparel and household goods—the main uses for resin-treated cotton—can be measured both in dollars and cents and in greater freedom from housework.

Take shirts, for example. The cheapest shirt to buy is an untreated one. But if laundering costs are also considered, it's something else again. If the housewife counts the time she spends starching and ironing the shirt

—and figures her time is worth a dollar an hour—it will cost her \$16 to launder the untreated shirt before it is thrown away. The shirt now has a total cost of \$19.95.

On the other hand, she will spend only about \$2 of her time laundering a wash-and-wear shirt that originally cost \$4 or \$5. So, if time is money to the housewife, the wash-and-wear shirt will look like a bargain to her.

Laundering ease is just one of the advantages gained through the innovation of wash-and-wear fabrics. Resin-treated cotton resists crushing and wrinkling far better than untreated cotton. It doesn't shrink as much and holds its shape better.

Manufacturers who only a year or so ago were skeptical of the new synthetic resin finishes for cotton now find they either produce easy-care cotton, or they don't sell. To meet the competition, textile men face more capital expenditures, more technical supervision, and more responsibilities, with the hope of more profit.

The possibilities of wash-and-wear have also pushed the textile chemical finishing industry into increased activity. In 1958, about 2 billion yards of cotton textiles were treated with resins to provide the easy-care finish. The experts guess that by 1960 the total may well be  $3\frac{1}{2}$  to 4 billion yards, or about two-thirds of the broad-woven goods now being finished for apparel and household uses.

There are still some problems in making the finished garments live up to public expectations. But textile

manufacturers are quick to point out that, if garment makers and consumers pay attention to instructions on how to use the treated cloth, easy-care clothing will perform as advertised.

As might be expected, commercial laundries have greeted wash-and-wear clothing with no great enthusiasm. Preliminary reports, however, show that these firms have not lost as much business as they feared. But they are going to have to find new ways to launder the treated fabric if the consumer is to get the most out of his wash-and-wear garments.

Research already has been undertaken by the drycleaning industry to determine whether it's possible and practical to resin-treat garments within their plants. This work has been sponsored by the National Institute of Drycleaning in cooperation with USDA scientists of the Agricultural Research Service. Results show that resin-treatments are not only technically possible but economically feasible.

Manufacturers of home laundry equipment are also coping with the problems of properly handling easy-care cottons. They are busy developing automatic machines that will wash resin-treated cottons gently, yet still get them clean.

Meanwhile, the customers aren't waiting. They want wash-and-wear cotton, and they want it now. And the industry—from the textile mills to the retail stores—is trying to meet this consumer demand.



The author is an agricultural economist in the Marketing Research Division of AMS. He is stationed at the Southern Utilization Research and Development Laboratory of ARS in New Orleans, La.

# The Philadelphia Market



**After more than 150  
years on traffic-tangled  
Dock Street, produce  
marketing moves to  
modern facilities on  
Galloway Street**

**F**OOD MARKETING in Philadelphia took a giant step forward this June when it moved from the confusion and chaos of Dock Street to the spacious, modern facilities on Galloway Street.

Located at the foot of the Walt Whitman bridge, within easy access of all major rail and road routes, the new Philadelphia produce market spans nearly a century and a half in food marketing. From the antiquated market area of Dock Street, produce dealers have moved into one of the most modern and up-to-date marketing terminals in the country.

When completed, the new Philadelphia Food Distribution Center will cover 400 acres of land, will represent

an investment of nearly \$100,000,000.

The recently opened produce and seafood markets comprise the first stage of this gigantic market development. Built at a cost of \$4,500,000, these markets house 53 wholesale produce merchants and 23 seafood dealers.

Wholesalers pay \$350 a month for a single unit—substantially the same as their per store rental on Dock Street.

But, at the new market, each store contains 2,900 square feet of unobstructed floor space. The warehousing area is 25 feet wide by 100 feet long, including both front and rear loading platforms. In addition, there are 400 square feet of mezzanine office space.

The main produce building also contains 30,000 square feet of modern air-conditioned office space for brokers, jobbers, news services, inspection agencies, tradesmen's banking facilities, and a doctor's office and barber shop.

The market itself is located at one of the most strategic sites within the limits of Philadelphia. It can easily be reached by all major rail, highway, air, and water transportation routes.

It is within a 75 to 100 mile radius of most Pennsylvania, New Jersey, Delaware, and Maryland markets.

Both the site and design of the new Food Distribution Center were suggested by specialists in the U.S. De-



Antiquated fixtures get the heave-ho as produce wholesalers move from condemned Dock Street stores to new units in south Philadelphia.

partment of Agriculture as long ago as 1935.

It was not until 1950, however, that any specific plans for a new produce center were begun. Then, at the request of the Greater Philadelphia Movement, a second, more definitive study was undertaken by the Transportation and Facilities Branch, Marketing Research Division, AMS. This covered all food wholesaling and handling facilities in Philadelphia. It outlined plans for a complete food marketing center for all types of food distributors—dependents, chain-store organizations, food processors, packer branch houses, and manufacturers' branch houses.

The new food distribution center was designed to bring one-stop shopping to the wholesale level.

Along with this new concept in marketing have come all of the latest innovations in market design and handling methods. Each store provides adequate refrigeration space and freezers for perishable products. There are wide streets for easy access and ample dock space at truck-bed level for quick unloading. Sanitary facilities include public toilets in each of the units.

None of these things existed on

Continued on page 16

Front and rear loading platforms of truck-bed level are important feature of new Philadelphia food market. Here, workman marks loading dock.



Horse-drawn fruit and vegetable carts added to traffic tangles on narrow, winding Dock Street.



No more traffic jams like this one on Dock Street. New market allows easy access, fast loading.



New Philadelphia market features wide streets, truck-level loading docks, and sanitary stores.



Raised platforms save on labor. Only one man needed to unload produce, move it into store.

AMS inspectors help food buyers get

# QUALITY PRODUCE FOR OCEAN LINERS

by E. E. Conklin

OCEAN LINERS are famous for fine food. And that reputation is no accident. Steamship companies spare no expense to make sure the meals they serve approach perfection. Renowned chefs, using the most modern equipment, daily prepare interesting dishes like peach Melba, Waldorf salad, asparagus tips hollandaise, and fruit parfaits.

To turn out these special taste treats, the very finest of fruits and vegetables must be used, and that's where the Agricultural Marketing Service lends a hand. Inspectors from the Fruit and Vegetable Division of AMS work with all major shipping lines operating from U.S. ports. They help the food buyers of these lines (foreign as well as American) draw up contract specifications for fruits and vegetables and then perform the inspection service which guarantees these specifications have been met.

Food purchasing agents for steamship companies are faced with several problems. First, they must look for fruits and vegetables with the very finest flavor and appearance—good enough to please the most critical diner. Also, they must be sure to buy enough for the entire voyage. (Once at sea, there's no chance to replenish the supply of fresh peaches or asparagus tips.) And, finally, they have to be sure that the quality of the produce is such that it will keep throughout the trip.

Adequate holding facilities aboard ship can keep the produce both fresh and palatable—if it is in good condition when it comes aboard. So, most of the problems of the shipping line

buyer can be solved by careful selection and purchase.

It takes a thorough knowledge of both the produce industry and the steamship business to competently purchase fresh fruits and vegetables for ocean-going vessels. By pooling their experience, AMS inspectors and steamship food buyers are able to fill the orders of the most exacting chefs.

Together, they work out the requirements for each kind of produce the line buys.

The AMS inspection force also provides the purchasing agent with a monthly list of the kinds of produce that are likely to be available in the wholesale markets. This gives the buyer advance notice of what might best be featured on the ship's menus the next trip out.

Because of the tight schedules of most ocean-going vessels, supply contracts are signed and suppliers alerted long before the ship enters port.

Even before the ship is moored, trucks begin unloading a bewildering array of fresh produce—often as many as 70 different kinds of fruits and vegetables for a single voyage.

As quickly as it is unloaded, the

AMS inspector examines the merchandise to make sure it meets contract specifications for both quantity and quality.

Inspection of produce for steamship lines is only one phase of the fresh produce inspection work being done by the Agricultural Marketing Service. Federal inspectors also make carlot inspections of fresh fruits and vegetables at produce points and receiving markets. In fact, this service represents the bulk of the AMS inspection work.

Large quantities of fresh produce also are inspected for the armed forces and veterans' hospitals. Many city, county, and State institutions make use of the service. So do restaurants, hotels, and private institutions.

The advantages of contract buying and Federal inspection are obvious. The purchasing agent can specify the exact kind and quality of produce he wants, and the produce dealer, in turn, can accurately place his bid and make up the order.

Federal inspection sees to it that everything is according to Hoyle. In so doing, the marketing process is a much faster and smoother operation. Foods costs are cut down because wastage and inferior merchandise are eliminated.

As a matter of fact, in the case of the steamships that dock in other countries as well as the United States, the inspection service probably persuades some shipping lines to buy more fruits and vegetables in this country than they would otherwise.

Fruit, vegetable inspectors check produce as it enters ship to see that it meets specifications.



The author is Chief of the Fresh Products Standardization and Inspection Branch, Fruit and Vegetable Division, AMS.



AMS study shows net value of Kansas wheat drops 1.25 cents a bushel during storage. Loss is due to shrinkage, removal of screenings, grade changes.

## QUALITY AND WEIGHT CHANGES IN STORED WHEAT

by V. John Brensike

**M**ARKETING specialists measured the weight and value of some two and a half million bushels of Kansas wheat recently to discover what losses of weight and quality, if any, occur during approximately 2 years of storage. The answer, they found, was very little.

According to the Agricultural Marketing Service, the total value of wheat delivered to 53 Government bin sites in 1952, 1953, and 1954 was \$5,010,493. Total loss of weight and quality for this wheat amounted to \$31,561 during the storage period. Some \$28,019 of this loss was due to shrinkage; \$3,542 resulted from grade changes and removal of screenings.

These figures are based on an assumed value of \$2 a bushel for No. 1 wheat and CCC discount rates for the different grades. Sales of screenings were given actual sales value.

On a per bushel basis, the average net loss for the wheat was 1.25 cents,

with 1.11 cents of this caused by shrinkage.

The remaining 0.14 cent loss was accounted for by grade change and screenage. The removal of screenings actually caused a loss of 0.33 cent, but this was offset by a gain of 0.19 cent a bushel due to changes in the average in and out grades.

To get the total change in value for the wheat during storage, researchers subtracted the value of wheat shipped from the value of the wheat received, then added or subtracted the value of screenings sold.

The specialists found that the grain at five of the bin sites had increased in total value during the storage period. The grade of this grain as it moved out of storage was higher than when it went in, and this increase in value was enough to offset the losses due to the removal of screenings and shrinkage.

If shrinkage losses are not considered, 17 other bin sites would also have shown net gains. That is, the loss due to screenings at these sites was more than offset by the grade changes.

Screenings, which are originally paid for at the same rate as the grain

(unless dockage is included), were later removed and sold separately. Their per bushel value as screenings equalled about 77 cents, considerably below that of the grain itself.

The marketing specialists chose 10 of the bin sites for intensive analysis. One-half of these sites were in the eastern part of the State and one-half in the western. Most of the storages were round steel bins with a capacity of about 3,250 bushels.

It was found that none of the factors usually attributed to shrinkage and grade changes—the type and capacity of the bins, insect infestation, moisture from external sources, fumigation, the use of insecticides, and turning operations—seriously affected the net value or the gross shrinkage losses of this wheat.

A complete report on this study may be found in AMS-325, "Shrinkage Losses and Grade Changes in Wheat Stored at Kansas Bin Sites," recently published by the Agricultural Marketing Service. Single copies may be obtained without charge by writing to the Marketing Information Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C.

The analysis of wheat stored at Kansas bin sites was conducted by James W. Taylor and Ruth E. Clifton of the Agricultural Economics Department, Kansas State University. It was done under contract with USDA. Dr. Brensike of the Marketing Research Division, AMS, supervised the study and authored this article.



# *Inspecting*

# RICE

Rice production in the United States is expected to total nearly 52 million hundredweight in 1959, and much of this production will move to market bearing Federal inspection certificates.

Inspection and grading of rice is a function of the Agricultural Marketing Service, which has inspection offices in all of the major rice producing areas of the United States.

Grade standards have been established for rough, brown, and milled rice. Quality certificates are issued on both lot and sample inspections.

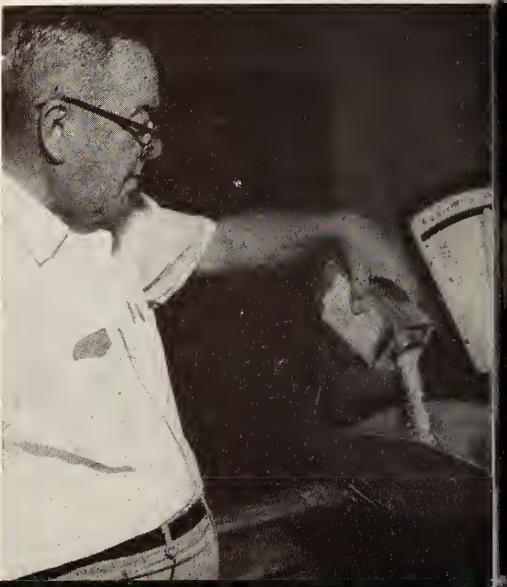
Each certificate—regardless of its type—states the class, quality, and condition of the rice.

- The class of rice usually is its variety—Patna, Blue Bonnet, Rexoro, Zenith, Pearl, or other.

- Quality refers to its milling quality. This is the most important factor in judging the value of rough (paddy) rice. Milling quality means its resistance to breakage as reflected by the percentage of whole kernels that can be milled from the rough rice. Thus, an expression such as "56-60" on a rough rice inspection certificate means the sample will yield 56 pounds of head rice (whole kernels) and 60 pounds of total rice (whole and broken kernels combined) from 100 pounds of rough rice.

- Condition, as indicated on the inspection certificate, refers to whether the rice is cool (that it isn't heating in storage), that it has a good natural odor and is free of insects.

Information such as this is valuable to all those involved in the marketing of rice. The farmer finds it useful as a selling guide. The miller uses it to determine whether a particular lot is suitable for blending. And, the exporter checks the AMS inspection certificate to see if the quality of the lot meets his contract specifications.





To get representative portion for grading, Federal inspector uses a mechanical divider to mix and divide the rice sample.



This is a dockage tester used to remove foreign material from the sample. Inspector is placing sieve in machine.



Rice, now cleaned and dockage free, moves into still another machine. This is a sheller which removes hulls from kernels.



Brown rice goes into miller to remove bran from kernels. Milling process is controlled by automatic time switch.



The total milled rice produced from the sample is then weighed. Later, whole kernels are separated from broken bits, and these are weighed to determine percentage of head rice in sample.

At his laboratory desk, the AMS rice inspector looks for red rice and damaged kernels to find percentage of degrading factors. He then will prepare an official rice inspection certificate.

LBS.  
FORCE  
80

60

40

20



80

60

40

20



80

60

40

20

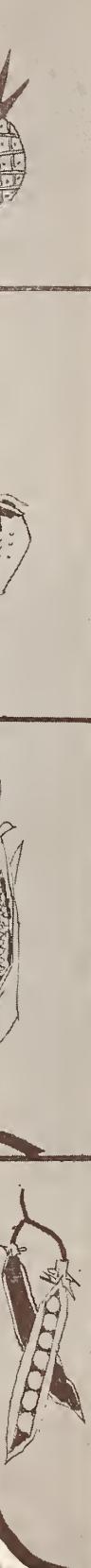


80

60

40

20



DISTANCE TRAVELED  
THROUGH SAMPLE

# SHEAR TEST indicate

AMS-modified shear press takes the argume

by Arthur P. Sidwell and R. W. Decker

PEOPLE who select and purchase canned, fresh, and frozen foods usually have a good idea what they want in the way of texture. If the product differs much from this pre-conceived standard, they won't buy it.

Growers, manufacturers, and dealers in fruits, vegetables, and meats must be able to provide and maintain the desired tenderness, softness, fibrousness, chewiness, or hardness in the foods they produce and handle.

But how?

Several types of mechanical plungers and motor-powered devices are being used to test the textures of food products—and with fairly good results. But each of these have certain limiting features. The probes can be used only with fruit held in the hand, and the mechanical devices require a unit to hold small items such as peas, beans, and so forth.

Both the hand devices and the motor-powered instruments have mechanical dials which are hard to read. In penetrating the produce, variations in texture frequently cause the needle to change so fast it is impossible for the human eye to follow its action. This makes accurate texture recordings hard to obtain.

This then was the area upon which food technologists and engineers at the Quality Evaluation Section of AMS in Beltsville, Md., recently centered their attention. They saw a very definite need to improve the utility and accuracy of texture-testing instruments.

Because the motor-driven shear press was the most promising of the existing devices, they set about to modify this instrument to better meet testing requirements. They did this by transforming the mechanical energy of shearing force into electrical

energy. Thus, they were able to obtain shear resistance readings on graph paper in a roll-type recorder—and the bothersome needle gage could be eliminated.

Work on modifying the shear press was done in the Beltsville machine shop. Some of the equipment was purchased, but many of the parts were designed and built by AMS engineers.

Once completed, the shear press with its new electrical system and recording instrument was an immediate success. Asparagus spears, which previously had caused considerable difficulty in testing, now could be easily measured for texture. Differences in tenderness of the individual stalks could be shown as well as differences between tip, center, and butt sections of the same stalk.

Tried on other products, the recording shear press worked equally well. The curves it plotted were good indications of tenderness and fibrousness. Each product had its own particular curve pattern, and each told its own story.

The curves that resulted from testing strawberries showed definite differences in varieties. Those which had tough skin and core tissue had curves with relatively sharp peaks; those with uniform texture showed a more even curve.

Samples of canned whole kernel corn also presented interesting shear resistance curves. The firmness of the kernels registered as a smooth, low curve which rose and broke sharply when the pericarp or skins of the kernels were sheared.

Tests with canned pineapple slices of different varieties clearly indicated the fibrousness of the sample. Some of the tougher slices gave curves having high pressure peaks; other, more tender samples had much lower peaks.

Shear-test pressure readings such as these are valuable indications of the good and bad effects that some

The authors are staff members of the Marketing Research Division of AMS.

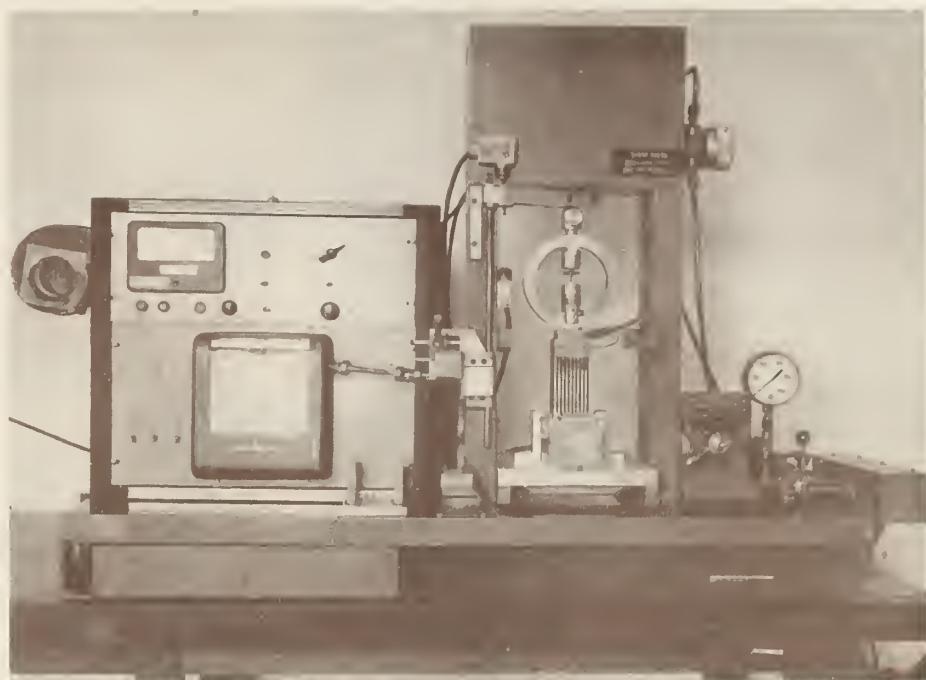
# tenderness

## of texture

handling procedures have on texture. They also afford a reliable basis for grading and quality control.

A number of recording-type shear test machines are in use in various food laboratories where scientists evaluate the texture of such diversified foods as onions, meats, strawberries, and spaghetti. With the new AMS adaptations, this work can result in a more meaningful analysis of these products.

The shear press with its written recording of pressure resistance offers a precise indication of texture which can be used in purchasing, quality control, plant breeding, and shipping, handling, and processing research.



There is no guesswork involved in judging tenderness when this motor-driven shear press is used on fruits and vegetables. Resistance readings are charted on graph paper in roll-type recorder. These readings are valuable indications of the good and bad effects of some handling procedures.

## Home Purchases of Nonfat Dry and Fresh Milk

by Michael G. Van Dress and Mardy Myers

NONFAT DRY MILK is making a place for itself in the household milk market. In so doing, it is increasing the outlet for milk and boosting total milk consumption.

Growth of the nonfat dry milk product in this market has been phenomenal. Ten years ago, only 2 million pounds of nonfat dry milk were being packaged for household use in this country. By 1958, this total had risen to 170 million pounds.

According to a recent Agricultural Marketing Service study, which included nearly 500 families in the metropolitan Chicago area, there was little change in fluid milk purchases by families either using or not using nonfat dry milk between July 1954 and June 1957. Families who bought nonfat dry milk actually increased their total milk consumption.

Forty-six percent of the families purchased nonfat dry milk in 1 or more of the 6 semiannual periods under study. Ten percent of these were frequent purchasers—that is, they bought the product at least once in each of the 6 periods.

Despite the rather general acceptance of nonfat dry milk, this product seems to have trouble getting additional users. As the survey period progressed, fewer and fewer new customers purchased nonfat dry milk.

Generally, purchases were inversely related to family income. Low-income families bought more than higher income households.

Purchase rates for fresh milk, on the other hand, were greater for middle- and high-income families than for low-income families. Middle- and high-income households purchased about the same amount of fresh milk.

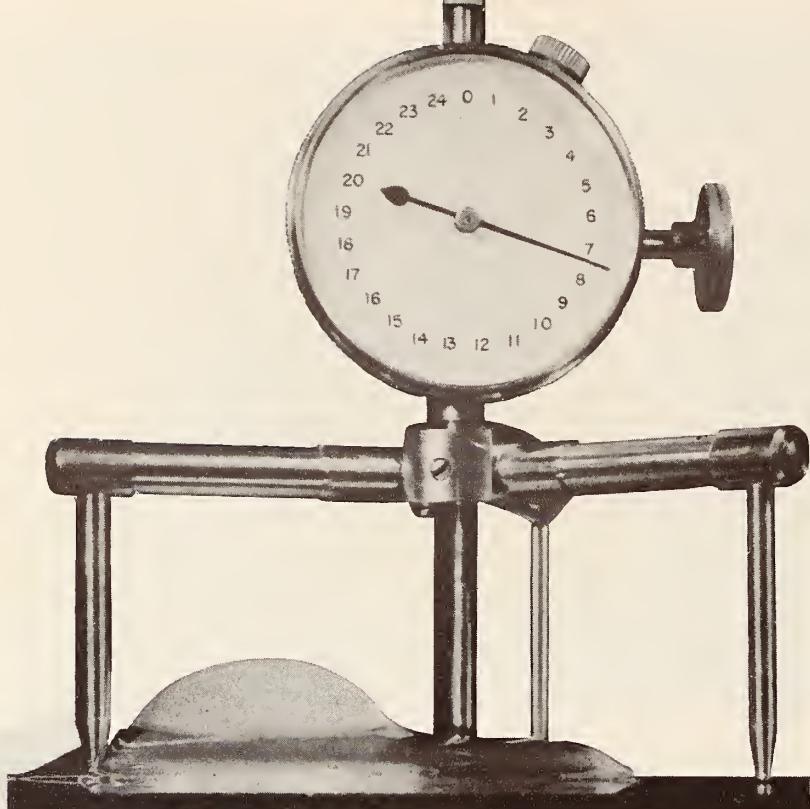
AMS researchers also analyzed pur-

chase patterns for evaporated and filled milk. (Filled milk is a product similar to evaporated milk, but with a vegetable fat rather than a milkfat base. It can be legally sold in only a few States.) Again, there didn't seem to be any substitution of nonfat dry milk for either of these two products.

Practically all of the families in the sample purchased fresh fluid milk during each 6-month period, and almost 1 out of 6 made purchases of nonfat dry milk. One out of 2 families bought evaporated milk, and 1 in 3 purchased filled milk.



The authors are staff members of the Marketing Research Division of AMS.



X SYMBOL  
OF NEW  
EGG GRADING  
PROGRAM

# FRESH FANCY

## "Fresh Fancy Quality"

These words, enclosed in the USDA grade shield, identify eggs that are produced and marketed under controlled optimum conditions and meet the highest quality standards of the U.S. Department of Agriculture.

USDA's "controlled quality" egg grading program authorizing the use of this new designation went into effect September 1. It was developed at the request of the industry, which found that the consistent year-round production of high quality eggs made such a program both feasible and desirable.

The program permits the use of either the Fresh Fancy Quality label or the U.S. Grade AA shield on top quality eggs.

Eggs meeting the standards of U.S. Grade A quality also may be marketed under the controlled quality program. Whichever grade shield is used—Fresh Fancy Quality, U.S. Grade AA, or U.S. Grade A—it may be accompanied by the boxed statement: "Produced and Marketed under Federal-State Quality Control Program."

The author is a marketing specialist in the Poultry Division of AMS.

This new egg grading program is the result of close cooperation between industry and government. For 18 months before the program was adopted, the Poultry Division of USDA's Agricultural Marketing Service tested quality control grading at a number of egg packing plants throughout the country. These trial runs demonstrated the reliability of such a program—providing, of course, that the eggs tested come from a uniform flock of hens and that all of the eggs in the shipment have been handled in the proper manner.

An important feature of the new grading program is the use of an objective method to determine quality—a goal long sought in the marketing of agricultural products. Interior egg quality is determined by breaking out a few sample eggs, measuring the height of the thick white, and observing the condition of the yolk.

USDA egg grading experts use the "Haugh unit" for measuring albumen quality. The Haugh unit is simply a numerical value used to classify eggs according to the height of the albumen in relation to the weight of the egg. The egg is weighed in terms of ounces per dozen and the height of the albumen is measured with a micrometer after the egg is broken out. These two figures are set on a Haugh

PRODUCED AND MARKETED  
under FEDERAL - STATE  
QUALITY CONTROL PROGRAM



PRODUCED and MARKETED  
under FEDERAL - STATE  
QUALITY CONTROL PROGRAM

# QUALITY

By H. Connor Kennett



Using sling psychrometer to measure humidity in storage room.

unit scale to get the score. Haugh unit values range from 0 to 110. Top quality eggs score from 72 to about 100 Haugh units, while C\* quality eggs range from 0 to 30.

Essential to the new "controlled quality" egg grading program are the qualification of a laying flock on the basis of the Haugh unit scoring of sample eggs and the maintenance of a minimum moving average based on the continuous testing of samples of deliveries from the flock. Other important requirements under the program are constant control of temperature and humidity levels and promptness in handling.

Here, briefly, are the requirements for eggs bearing the identification "Produced and Marketed under Federal-State Quality Control Program" and marked "Fresh Fancy Quality" or "U.S. Grade AA":

- Eggs must be gathered frequently on the farm—two to three times a day.

- They must be cooled immediately and held throughout the marketing channel (including the retail store) at a constant temperature of no more than 60 degrees and a relative humidity of approximately 70 percent.

- Any cleaning or shell treating of the eggs must be done in an approved, sanitary manner.

- Eggs from each flock must be packed separately and cases marked to show their identity. A flock is defined as birds not varying in age by more than 60 days.

- A flock is eligible for the program if a random sample of 25 eggs averages 76 Haugh units or two such samples drawn in consecutive weeks average 73 Haugh units, provided that not more than one egg measures less than 55 Haugh units and no egg has a serious yolk defect.

- To stay on the program, the flock must maintain a moving average of 72 Haugh units and have no weekly average less than 68 Haugh units. Not more than one egg in any sample of 10 eggs or more may measure less than 55 units. No serious yolk defects are permitted.

- Eggs are sampled and tested by Government graders once a week for each flock, either at the packing plant or at the farm if eggs are shipped direct from farm to store. Weekly samples consist of either 5 or 10 eggs, depending upon the average score.

- Loss eggs and those with blood spots, meat spots, or checks, as well as those with shells failing to meet requirements for AA quality, must be removed before packaging and labeling. Egg size must be specified on the package along with the grade.

- Cartons or sealing tapes must bear a "pull" or expiration date not to exceed 10 days from day of testing. After that date, eggs must be removed from the labeled cartons or the official grade mark obliterated.

- Government graders are responsible for sampling, testing, and keeping records in connection with the program and for making periodic checks to determine that the requirements for production and distribution are being met.

For eggs handled under the program as U.S. Grade A, requirements are practically the same except that the minimum Haugh unit average is lower, and in this case a flock is defined as birds located on the same farm.

The traditional grading program, involving the use of candling to determine interior quality, will also continue in use. It has served the industry and the consumer well since its inception in the 1920's.

The new grading system, however, is designed to meet the needs of the egg industry both now and in the future since it is well adapted to new mechanized methods of egg handling such as flash or bulk candling, electronic blood spot detectors, and other mechanical selection devices not yet perfected.

# Consumers Prefer

by J. Scott Hunter

## Apple Juice Concentrate

**I**T'S THE TASTE that counts. And concentrated apple juice tastes a lot better than single-strength commercial juices.

At least, that's the opinion of a group of consumer households who participated in a recent Agricultural Marketing Service preference experiment.

These families, representing a wide range of social and economic characteristics, tried three different forms of apple juice for three consecutive weeks. (Two were commercial juices; one the concentrate.) They were not told which was which—or even if any were different. They were simply asked each week to rate the juices on a scale ranging from "liked extremely" to "disliked extremely."

Everyone in the family over 16 years of age got a chance to express his opinion. For those under 16, the mothers were asked what their children thought about the juices.

The reason for the study was to find out if the public thought as highly of the newly developed concentrate as did the scientists who perfected it.

Both bottled and canned apple juices lose some of their fresh, just-

pressed flavor in the processing operation. The new concentrate was developed to preserve this fresh-cider taste.

A product of the Eastern Utilization Research and Development Division of the Agricultural Research Service, the mixed concentrate resembles a high grade, clarified, single-strength juice. It is reconstituted by adding 6 parts of water to 1 of the concentrate.

This is the form in which it was delivered to the test families. There was nothing—other than the taste—to distinguish it from the two commercial brands being tested.

Yet many of those who drank all three forms of apple juice were quick to indicate a preference for the concentrate. They also seemed to prefer one of the commercial juices over the other.

When all the rating points were averaged up (a juice could score anything from a 10 for "liked extremely" to a 1 for "disliked extremely"), the concentrate pulled 7.3 points. This was higher than both the 6.8 and 6.3 points accorded to the single-strength juices.

Generally, the homemakers commented about the "natural apple taste" of the concentrate. Some, how-

ever, mentioned its clear amber color—something only a few people noted in the commercial juices.

The criticism made most often of the concentrate—though only by 1 in 10—was that it was "too sweet." But some people made this comment about all of the juices. Actually, the sweetness of the reconstituted juice was controlled at a level somewhere between that of the two other juices.

After three weeks of taste-testing, half the families received the concentrate in its unreconstituted form. They were then asked to continue another week and rate this product. These fourth-week ratings only substantiated earlier scores, and the reasons given for liking the concentrate were again very much the same as before.

Few of the women objected to mixing the concentrate. Only 1 in 10 complained. These considered it a "minor nuisance."

Asked if they'd buy it again were it sold at the stores where they shopped, 68 percent said they would. A few didn't know if they would or not. And most of those who said "no" objected to the taste rather than the inconvenience. Some simply didn't like apple juice.

Everything considered, the USDA-developed concentrate rated well under the critical taste testing of the "general public."

Thus, once again, through cooperative research, a new product has been created to expand the market for another of our Nation's farm foods.

The author is a staff member of the Marketing Research Division of AMS.

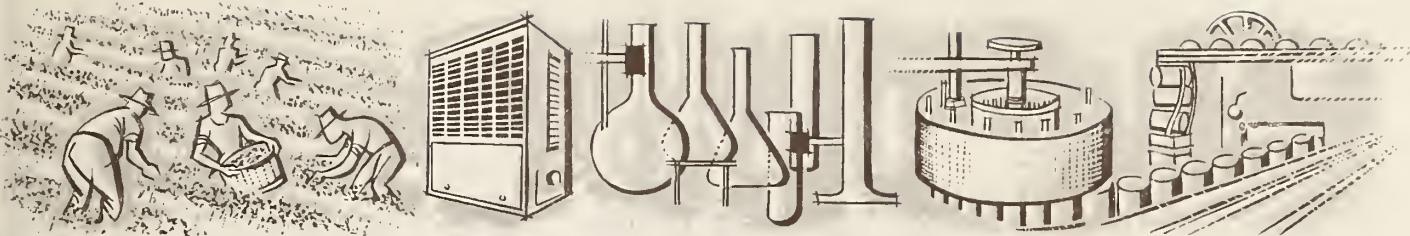


## Top USDA Award to Bert Newell

Sterling R. "Bert" Newell, chairman of the U.S. Crop Reporting Board (pictured in center of photo at left), has been awarded the U.S. Department of Agriculture's Distinguished Service Award.

Mr. Newell was cited for "his vision and leadership in helping to provide the American farmer with the best agricultural statistics and marketing services to be found anywhere in the world."

USDA crop, livestock, and price reports also are used by businessmen, administrators, and legislators as guidelines for current activities and future planning.



# The Changing Market

## A New Cotton Fabric

Cotton ironing pads, covers, and press cloths that are scorchproof and heat resistant may offer competition to synthetic and asbestos products now on the market.

A new fabric which possesses these properties has been developed at the Southern Utilization Research and Development Division of the Agricultural Research Service. It is technically termed "partially acetylated (or PA) cotton." Its improved quality results from chemical treatments which actually change the physical and textile properties of the cotton.

Commercial tests have already proven the practical value of the new product. PA fabrics, when exposed to sustained temperatures of 300° F. or more, lasted 4 times longer than untreated cotton.

Cost estimates, based on commercial laundry operations, showed it could be less expensive to use PA cotton than other materials.

If partially acetylated cotton could absorb as much as 50 percent of the market now held by competing materials and untreated cotton, 17,000 bales of cotton could be used by commercial laundries for ironing pads, covers, and press cloths.

But, say the PA fabric were able to penetrate all of the market for other competing materials and half of that for untreated cotton, then these firms would use nearly 27,500 bales of cotton.

Home ironing board covers could take another 2,225 bales.

However, it must be remembered

that the service life of PA cotton in laundry uses is about 4 times that of untreated cotton. So, actually, the market equivalent would only be about one-fourth that of the untreated cotton it replaced.

Yet, even this would be helpful to the cotton industry. Untreated cotton is presently being displaced by synthetics at a rather rapid rate.

A free copy of the report, "Potential Markets for Partially Acetylated Cotton," AMS-324, may be obtained from the Marketing Information Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D. C.

## Shift to Bulk Cooling Tanks

Farmers are shifting rapidly toward the use of bulk milk cooling tanks, a recent AMS survey shows.

One-third of all producers delivering milk to Federal milk order markets in January 1959 used bulk cooling tanks on their farms. These producers delivered nearly half of the milk shipped to these markets—and the average quantity they delivered was nearly twice that of producers using milk cans.

These facts are shown in data reported for the 72 markets in which Federal milk orders operated at that time. The report compares 1959 figures with 1956, 1957, and 1958 data.

Copies of the report, "Bulk Milk Cooling Tanks on Farms of Producers Marketing Milk in Federal Order Markets, January 1959," AMS-261, may be obtained from USDA.

## Acreage-Marketing Guides

Three percent fewer acres of winter vegetables will be planted this fall—if growers follow the new acreage-marketing guides issued by the Agricultural Marketing Service of USDA.

Yet, even with this reduced acreage, normal yields for the 16 major winter vegetables should result in a crop 2 percent larger than a year earlier.

Acreage-marketing guides are a service of the Fruit and Vegetable Division of AMS. They are intended to help growers adjust their production to consumer demand. The guides not only make specific suggestions for plantings of individual vegetables, but give reasons for these suggestions.

For 1960, the guides recommend a 65 percent increase in the acreage for cucumbers, a 15 percent increase in tomatoes, and a 10 percent boost in snap beans.

Acreage cuts are recommended for green peppers and escarole (15 percent), Florida celery (20 percent), and California and Arizona celery (5 percent).

Lettuce plantings should be cut 10 percent in California, boosted 25 percent in Texas, unchanged elsewhere.

Potato acreages should remain the same as in 1959. With normal abandonment and yields, this will result in a crop that is 9 percent larger than a year earlier but still 15 percent below the 10-year average.

Recommendations are based on a forecast of continuing high consumer demand for winter vegetables in this country and an upward trend in exports.

OFFICIAL BUSINESS

## The Philadelphia Market

Continued from page 5

Dock Street. Few of the houses had front and back entrances; none had truck-level loading platforms. Produce moved from the truck to the street, where it had to be moved a second time into the stores. Storage space was cluttered with ells, posts, and other obstructions. Refrigeration often was inadequate or entirely lacking, and there were no public toilet facilities.

Add to this the never-ending traffic tangle outside every stall and it's easy to see why the Philadelphia produce merchants were unable to operate either efficiently or economically on Dock Street.

The improved facilities at the new market result in lower operating and handling costs, and, at the same time, speed up the marketing process so that a better quality produce moves to the retail store.

Thomas M. Marshall, a time-motion expert who operates a supermarket design and equipment manufacturing company, claims produce now reaches the retail store  $4\frac{1}{2}$  hours fresher than when it was handled on Dock Street.

He says, "The easy accessibility of the market site, the broad, truck-level dock area, and the ability to use improved handling equipment make this possible."

Not only does the consumer stand to benefit from the new market, but so does everyone down the marketing line—farmer, wholesaler, and buyer. The new produce market is expected to save \$1,500,000 in marketing costs each year through speeded up traffic

flow and in costs of cartage, portage, internal handling, spoilage, breakage, and damage.

Farmers and shipping organizations find the time element most important. According to A. C. Thompson, owner of a large vegetable farm near Bordentown, N. J., the new site and broad streets of the market will mean a time-saving of several hours a load.

"One reason I haven't been shipping a lot of my produce to Philadelphia has been the difficulty of getting in and out of Dock Street," Mr. Thompson explained. "And this has been true for other growers all over the East. If there was a choice, we preferred to go elsewhere."

"Now that things are different," he went on, "I'll probably be doing a lot more business in Philadelphia."

Mr. Thompson, who (with his two sons, Robert and Edward) farms nearly 1,000 acres, ships vegetables to all of the Eastern markets. He does business in Philadelphia with one of the larger firms on Galloway Street.

Robert Hunter, operator of that firm, is among the more skeptical wholesalers on the street. He admits that his new place of business is better designed, more sanitary, and better adapted to improved handling. But he worries about the cost of his store units (he rents two for \$700 a month) and whether the increase in efficiency and in volume will offset this expense.

His cousin, Jefferson Edwards, whose firm occupies the store next door, has no doubts about the value of the new market.

Mr. Edwards says, "It's one of the

best things that's happened in Philadelphia, something that should have happened 20 years ago."

He figures the added convenience and more sanitary conditions will bring him more business.

Down the street in Stall No. 103, Russ Wunner, a tropical fruit dealer, also believes the new market will mean a more economical enterprise. He says that with established selling hours he will be able to reduce his sales staff and thereby save some \$10,000 a year.

Economies of operation may, in the future, also be coupled with economies of scale. Produce marketing in the Philadelphia area is growing. So, too, is the size of the market development.

One wholesale grocery firm is building a \$2,000,000 warehouse at the Philadelphia market site. A large baking company plans to erect a \$6,500,000 bakery and commissary. A fruit company has leased 12 acres for a \$500,000 warehouse for perishable fruits, and a chain food store has scheduled a \$300,000 seafood warehouse.

According to AMS research people, these new facilities, together with those already erected and those that will be built in the future, should result in net savings of \$6,000,000 a year in food handling and distribution in the Philadelphia area.

Savings such as these are shared by everyone in the produce business as well as by the consumer who buys Philadelphia-marketed farm foods at the retail store and the grower who supplies them.